

**METHOD, APPARATUS AND SYSTEM FOR
CONSTRUCTING AND MAINTAINING SCENEGRAPHS FOR
INTERACTIVE FEATURE-BASED GEOSCIENCE GEOMETRIC MODELING**

ABSTRACT OF THE DISCLOSURE

[0195] A method, computer system or computer program is provided for interactively constructing, editing, rendering and manipulating geoscience models, including aggregating the functionality of a geometry system and a graphics system, enforcing consistency between the geometry system and the graphics system, and interfacing the geometry system and the graphics system to an application through an integration layer. State machines are also provided that enable updating of only those graphics objects whose geometry or topology have been changed and that are specified as visible by the user, thus increasing performance. A scenegraph construction technique is also provided to reduce memory requirements and further enhance performance. A material property framework is provided, among other things, to communicate changes in the geometry or topology to aggregate objects which then determine which graphics objects are affected by the changes and which graphics objects are to be updated.